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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/540,401

06/23/2005

Akihiko Nishio

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EXAMINER

KHAN, MEHMOOD B

ART UNIT

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2617

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/540,401	<b>Applicant(s)</b> NISHIO ET AL.	
	<b>Examiner</b> MEHMOOD B. KHAN	<b>Art Unit</b> 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06/23/2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/04/2008</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

- Applicant has cancelled claims 1-9.
- Applicant has submitted new claims, 10-18.

### *Response to Arguments*

Applicant's arguments with respect to claims 10-18 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 10-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frodigh et al. (US 5,726,978 herein Frodigh) in view of Terry (US 2004/0009786).**

Claims 10, 18, Frodigh discloses a radio communication apparatus (**Abstract**), Frodigh discloses a reception section that receives an orthogonal frequency division multiplex (OFDM) signal (**Col 2: 52-53, where Frodigh discloses OFDM, Col 7: 66, Fig. 3A: 330, where Frodigh discloses a link receiver**), Frodigh discloses a reception quality measuring section that measures reception quality of each subcarrier in the received OFDM signal (**Col 8: 33-38, Figure 3C: 330, 332, 342 and 344, where**

**Frodigh discloses a receiver with a demodulator and signal quality and interference measurement means);** a subcarrier selection section that selects subcarriers where higher reception quality is measured **(Col 10: 15-36, Fig. 3A: 360, where Frodigh discloses an ACA processor and selection of M subcarriers, Col 7: 29-34, where Frodigh discloses measurement messages on a control channel);** Frodigh discloses generating section that generates a report according to the reception quality of the selected subcarriers; and a reporting section that reports the generated report and information indicating the selected subcarriers to a communicating party **(Col 10: 60 through Col 11: 9, where Frodigh discloses sending the results of the measurements).**

Frodigh does not explicitly disclose a channel quality indicator (CQI).

In an analogous art, Terry discloses a channel quality indicator (CQI) **(0012, where Terry discloses that it is well known in the art to use CQI).** Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Frodigh to include using a CQI as taught by Terry so as to select the proper modulation and coding scheme **(0012).**

Claim 11, Frodigh discloses wherein said subcarrier selection section selects subcarriers of reception quality equal to or higher than a threshold based on reception quality and a threshold decision against a threshold reported from the communicating party **(see Figure 5, step 516, where Frodigh discloses a C/I threshold).**

Claim 12, Frodigh discloses wherein said threshold is controlled adaptively according to an amount of traffic in a cell in which there is the radio communication apparatus and neighboring cells **(see Col 10, lines 30-36, where Frodigh discloses selection of subcarrier based on use of subcarrier in an adjacent channel, it is easily understood by one of ordinary skill in the art not selecting a subcarrier in use in an adjacent channel will increase C/I).**

Claim 13, Frodigh discloses wherein said subcarrier selection section selects the same number of subcarriers reported from the communicating party **(see Col 10, lines 19-26, where Frodigh discloses reconfiguring).**

Claim 14, Frodigh discloses wherein said number of subcarriers is controlled adaptively according to an amount of traffic in a cell in which there is the radio communication apparatus and neighboring cells **(see Col 12, lines 40-49, where Frodigh discloses re-assigning of subcarriers).**

Claim 15, Frodigh discloses wherein said subcarrier selection section selects subcarriers from the subcarriers restricted beforehand out of all subcarriers **(see Col 7, lines 44-50, where Frodigh discloses number of carriers in the system).**

Claim 16, Frodigh discloses a communication terminal apparatus comprising the radio communication apparatus according to claim 10 **(see Figure 3A, el. 330).**

Claim 18, Frodigh discloses a radio communication system **(Abstract)**, Frodigh discloses a base station apparatus that sends information which becomes a selection criterion of subcarriers, to a communication terminal apparatus **(see Figure 2, el. 200, where Frodigh discloses a base station, Col 7, lines 29-34, where Frodigh discloses measurement messages on a control channel)**; Frodigh discloses a communication terminal apparatus that comprises: a subcarrier selection section that selects subcarriers of higher reception quality based on selection criterion information sent from said base station apparatus and reception quality of each subcarrier **(see Figure 3A, el. 330, where Frodigh discloses a link receiver, Col 10, lines 15-36, Figure 3A, el. 360, where Frodigh discloses an ACA processor and selection of M subcarriers, Col 8, lines 33-38, Figure 3C, el. 330, 332, 342 and 344 where Frodigh discloses signal quality and interference measurement means)**; Frodigh discloses a generating section that generates a report according to the reception quality of the selected subcarriers; and a reporting section that reports the generated CQI and information indicating the selected subcarriers to said base station apparatus **(see Col 10, line 60 through Col 11, line 9, where Frodigh discloses sending the results of the measurements)**.

Frodigh does not explicitly disclose a channel quality indicator (CQI).

In an analogous art, Terry discloses a channel quality indicator (CQI) **(0012, where Terry discloses that it is well known in the art to use CQI)**. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to modify Frodigh to include using a CQI as taught by Terry so as to select the proper modulation and coding scheme **(0012)**.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MEHMOOD B. KHAN whose telephone number is (571)272-9277. The examiner can normally be reached on Monday - Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on 571-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mehmood B. Khan/  
Examiner, Art Unit 2617

/Lester Kincaid/  
Supervisory Patent Examiner, Art Unit 2617